CLAIMS

What I claim is:

1. A pressure screw assembly comprising a generally cylindrical body having a pair of end faces and a longitudinally axis extending through said body and said end faces;

said body having first, second and third concentric interconnected cylindrical bores between said end faces;

said first bore adjacent one of said end faces being larger in diameter than said other bores;

said second bore adjacent to the other of said end faces being larger in diameter than said third bore and being internally threaded;

said third bore connecting said first and second bores;

said cylindrical body having external threads throughout the major portion of its length and including a leading thread and a trailing thread;

the remaining portion of the length of said cylindrical body being provided with an external polygonal shaped head between said other end face and said trailing thread;

a floating annular thrust pad received in said first bore and having a centrally located threaded bore extending part way therethrough;

a bolt having threads on one end and a head on the other end with said threaded end and said head of the bolt being separated by a cylindrical portion;

said bolt located in the bores of said pressure screw body with said head in said second bore, said cylindrical portion in said third bore and said threaded end threaded into the threaded bore of said thrust pad;

a biasing means received in said second bore and abutting the head of said bolt; and an adjustable externally threaded adjusting screw threaded into said second bore and engaging said biasing means.

2. The pressure screw assembly of claim 1, wherein said biasing means is a spring.

3. The pressure screw assembly of claim 2, wherein said spring is a coil spring.

4. The pressure screw assembly of claim 1, wherein said external polygonal shaped head is in the form of a hexagon.

5. The pressure screw assembly of claim 1, wherein said adjusting screw when adjusted varying the tension of said biasing means applied to said bolt and said thrust pad.

6. A pressure screw assembly comprising a generally cylindrical body having a pair of end faces and a longitudinally axis extending through said body and said end faces;

said body having first, second and third concentric interconnected cylindrical bores between said end faces;

said first bore adjacent one of said end faces being larger in diameter than said other bores and having an internal first annular abutment surface parallel to said one end face;

said second bore adjacent to the other of said end faces being larger in diameter than said third bore, being internally threaded and having an internal second annular abutment surface parallel to said other end face surface;

said third bore connecting said first and second bores;

said cylindrical body having external threads throughout the major portion of its length and including a leading thread and a trailing thread;

the remaining portion of the length of said cylindrical body being provided with an external polygonal shaped head between said other end face and said trailing thread;

a floating annular thrust pad received in said first bore and engageable with said first abutment surface, said pad having a centrally located threaded bore extending part way therethrough;

a bolt having threads on one end and a head on the other end with said threaded end and said head of the bolt being separated by a cylindrical portion providing an annular third abutment surface near the threads on said one end of said bolt;

said bolt located in the bores of said pressure screw body with said head in said second bore, said cylindrical portion in said third bore and said threaded end threaded into the threaded bore of said thrust pad;

spring means received in said second bore and abutting the head of said bolt; and

an adjustable externally threaded adjusting screw threaded into said second bore and engaging said spring means for varying the tension thereof.

7. The pressure screw assembly of claim 6, wherein said spring means is a coil spring.

8. The pressure screw assembly of claim 6, wherein said external polygonal shaped head is in the form of a hexagon.

9. The pressure screw assembly of claim 6, wherein said adjusting screw when adjusted varying the tension of said spring means, bolt and said thrust pad.

10. The pressure screw assembly of claim 6, wherein said end faces and said abutment surfaces are parallel to one another.

11. A locking ring assembly for retaining a bearing to a shaft rotatably supported on a first axis of rotation comprising:

a bearing retainer of annular shape slideably disposed over the shaft having a loading face on a first side disposed toward the bearing and an oppositely facing second side;

a pressure ring of annular shape slideably disposed over the shaft having a first side disposed toward the bearing retainer and an oppositely facing second side and defining a plurality of adjusting apertures parallel to the axis of rotation, each of said adjusting apertures having a threaded portion between the second face of the pressure ring and a point between the first side and the second side and a substantially smooth guide portion between the threaded portion and the first side of said pressure ring;

said second side of said bearing retainer having a plurality of circumferentially extending cavities therein which are opposite and spaced from said adjusting apertures in said pressure ring;

a plurality of guide pins mounted on one end in said cavities of said bearing retainer and fixedly projecting from said second side of said bearing retainer towards said pressure ring and parallel to the shaft axis;

each guide pin having a head on the other end thereof extending into the opposing smooth guide portion in the first side of said bearing retainer;

a reaction means fixed to the shaft on the second side of the pressure ring thereby limiting axial translation of the pressure ring along the shaft away from the bearing and bearing retainer;

a pressure screw assembly received in each of said adjusting apertures opposite the head provided on the corresponding guide pin, each pressure screw assembly comprising a generally cylindrical body having a pair of end faces and a longitudinally extending axis extending through said body and said end faces and arranged parallel to the first axis of rotation;

each cylindrical body having first, second and third concentric interconnected cylindrical bores between said end faces;

said first bore adjacent one of said end faces being larger in diameter than said other bores;

said second bore adjacent to the other of said end faces being larger in diameter then said third bore and being internally threaded;

said third bore connecting said first and second bores;

each cylindrical body having external threads throughout the major portion of its length and including a leading thread and a trailing thread;

the remaining portion of the length each cylindrical body being provided with an external polygonal shaped head between said other end face and said trailing thread;

a floating annular thrust pad received in said first bore and located opposite the head of the corresponding guide pin and having a centrally located threaded bore extending partway therethrough;

each of said pressure screw assemblies including a bolt having threads on one end and a head on the other end, with said threaded end and said head of the bolt being separated by a cylindrical portion;

each bolt located in the bores of the corresponding pressure screw body, with said bolt head in said second bore, said cylindrical portion in said third bore and said threaded end threaded into the threaded bore of said floating annular thrust pad;

biasing means received in said second bore of each pressure screw assembly and abutting the head of the corresponding bolt; and

an adjustable externally threaded adjusting screw threaded into said second bore of each pressure screw assembly and engaging and tensioning said biasing means, effective when the adjusting screw is turned to urge said bolt and said thrust pad against the corresponding head of the guide pin which produces axial displacement of the pressure ring relative to the bearing retainer and a compressive force therebetween when the pressure ring engages said reaction means.

12. The locking ring assembly of claim 11, wherein said reaction means comprises a reaction ring disposed in a circumferential groove in the shaft.

13. The locking ring assembly of claim 11, further comprising a plurality of guide pin retainers, each defining an aperture providing a piloting relationship with a shank of the guide pin between the head and the bearing retainer and fixed to the first side of the pressure ring with the aperture aligned with the pressure ring.

14. The locking ring assembly of claim 11, further comprising a bearing chock fixed to a mill and circumscribing and trapping the bearing wherein both the bearing and the locking ring assembly are retained in position relative to the mill when the shaft is removed from the mill.

15. The locking ring assembly of claim 11, wherein the biasing means of each pressure screw assembly is a spring.

16. The locking ring assembly of claim 15, wherein each spring is a coil spring.

17. The locking ring assembly of claim 11, wherein the external polygonal shaped head of each pressure screw assembly is in the form of a hexagon.

18. The locking ring assembly of claim 11, wherein the adjusting screw of each pressure screw assembly when adjusted varies the tension of said biasing means to urge said bolt and said thrust pad against the corresponding head of the guide pin.

19. The locking ring assembly of claim 11, wherein each adjustable externally threaded adjusting screw when threaded into the adjusting apertures to a depth produces a compressive force between the pressure ring and the reaction means.